Working paper:

BATYRA, Ewa; PESANDO, Luca M.; CASTRO; Andrés F.; FURSTENBERG, Frank F.; KOHLER, Hans-Peter (2022) "Union Formation, Within-Couple Dynamics, and Child Well-Being in Global Comparative Perspective". *Population Center Working Papers*, 84: 1-32. University of Pennsylvania, Population Center. https://repository.upenn.edu/cgi/viewcontent.cgi?article=1083&context=psc_publications

Population Center Working Papers (PSC/PARC)   Penn Population Studies Centers

2-15-2022

Union Formation, Within-Couple Dynamics, and Child Well-Being in Global Comparative Perspective

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Recommended Citation

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Studies on global changes in families have greatly increased over the past decade, adopting both a country-specific and, more recently, a cross-national comparative perspective. While most studies are focused on the drivers of global changes in families, little comparative research has explored the implications of family processes for the health and well-being of children. This study aims to fill this gap and launch a new research agenda exploring the intergenerational implications of union-formation and within-couple dynamics for children's health and well-being across low- and middle-income countries (LMICs), both globally, regionally, and by the stage of fertility transition. We do so by adopting a *multi-axis* conceptualization of children's outcomes – health at birth, health in later life, and schooling – and leveraging Demographic and Health Survey and World Bank data across 75 LMICs. Our results show that in settings where partnerships are characterized by more equal status between spouses – i.e., where the age range between spouses and differences in years of schooling between partners are narrower – their offspring fare better on several outcomes. These associations are particularly strong in mid- and high-fertility settings. Despite a series of regularities, our results also highlight a set of findings whereby, at a macro-level, the prevalence of marriage and divorce/separation are not invariably associated with children's outcomes, especially in LMICs where fertility is comparatively lower. We document little cross-regional heterogeneity, primarily highlighting the centrality of demographic factors such as age vis-à-vis, for instance, region-specific characteristics that are more tied to the social fabric of specific societies.

Keywords: family change; union formation; gender dynamics; health and well-being; children; LMICs.

1. Introduction

Studies on global changes in families have greatly increased over the past decade, adopting a country-specific and, more recently, a cross-national comparative perspective (Bongaarts 2001; Bongaarts, Mensch, and Blanc 2017; Castro et al. 2021; Cherlin 2016; Clark and Brauner-Otto 2015; Clark, Koski, and Smith-Greenaway 2017; Davis, Bilsborrow, and Gray 2015; Esteve et al. 2016; Koski, Clark, and Nandi 2017; Liu, Esteve, and Treviño 2017; Pesando and GFC Team 2019; Raymo et al. 2015; Ruggles and Heggeness 2008). A growing literature has examined cross-nationally the determinants of why families are changing in low- and middle-income countries (LMICs). They have examined such driving forces as educational change, urbanization, socio-economic development or economic inequality (Castro Torres, Batyra, and Myrskylä 2022; Esteve and Florez-Paredes 2018; Garenne 2004; Lerch 2019; Lesthaeghe 2020; Stoebenau et al. 2021). Conversely, less attention has been devoted to the consequences of family processes for the health and well-being of the next generations. Most studies on the topic have focused on a single predictor and/or outcome such as divorce and child mortality (Smith-Greenaway and Clark 2017) or children's schooling (Chae 2016), single parenthood and child mortality (Clark and Hamplová 2013) or women's empowerment within a family and child development (Bliznashka et al. 2021), etc. Similarly, existing studies typically delve into the specifics of one country at a time, as it is for instance the case for Maliawi (Chae 2016), Chile (Torche and Abufhele 2021), South Africa (Case and Ardington 2006), Bangladesh (Bhuiya and Chowdhury 1997), etc. As such, there is a noticeable absence of cross-national studies providing an assessment of how specific aspects of the family – captured through multiple dimensions and indicators – are related to a range of children's outcomes across LMICs, thus limiting an understanding of the potential meso- and macro-level factors that may underlie heterogeneous results. Cross-national comparative studies may help scholars identify common structural factors underpinning differences in future generations' outcomes across LMICs,

including gender, health, and educational dynamics, as well as potential regional "exceptionalisms" where these structural factors may follow unexpected patterns that do not necessarily fit into extant theoretical predictions.

The aim of our analyses is to help fill this gap by documenting the macro-level associations between two key dimensions of families – union-formation and within-couple dynamics – and multiple children's outcomes related to health at birth, health in later life, and schooling in LMICs. While our analyses provide associations, rather than causal estimates, they are important because they are the first comprehensive assessment of the intergenerational implications of union-formation and within-couple dynamics for a range of child outcomes in LMICs. Exploring linkages between these partnership patterns and child well-being in LMICs is especially important and timely given substantial transformations that the institution of marriage has undergone in recent decades (Cherlin 2012) – including growing rates of divorce and separation and increasing rates of cohabitation (Castro-Martín and Dominguez-Rodriguez 2016; Clark and Brauner-Otto 2015; Esteve, García-Román, and Lesthaeghe 2012) – alongside broader societal transformations such as rising life expectancy, rapid urbanization, and significant educational expansion, particularly among women (Psaki, McCarthy, and Mensch 2018). Studies on high-income societies (HICs) frequently highlight that family instability and the gradual "erosion" of family pillars (e.g., two-parent family and stable marriage) might negatively affect children's outcomes over the life course (Fomby and Cherlin 2007; McLanahan 2004). Despite this widespread perception, there is a growing body of literature suggesting that single parenting and divorce might not necessarily be as detrimental to children's well-being as speculated, or at least not in all circumstances (Brand et al. 2019; Cheung and Park 2016). While these mixed relationships and their heterogeneity have been scrutinized in the context of HICs (Härkönen, Bernardi, and Boertien 2017), research on the links between patterns of partnerships and child well-being in LMICs is scarcer. Consequently,

this study aims to provide an examination of the relationships between dynamics of union formation/dissolution and gender dynamics within couples and various measures of child well-being in LMICs.

While much is known about how status differences associated with gender influence the links between partnership form and stability in countries with advanced economies, gender that take on particular salience in the West and parts of Asia, the impact of gender differences in status and resources may confer different meanings and hence different consequences in context of the low-income world. This observation is especially likely to apply to regions of the world where the gender asymmetries in status are more normative and may therefore play out differently in our explorations of union formation and its potential consequences for the well-being of children. Even with the obvious limitations of examining macro-level data, we believe that an analysis of this kind represents an initial step that helps identify specific contexts and dimensions that are worth of additional scholarly attention.

Expanding knowledge about these links beyond HICs is important given recent studies from LMICs highlighting that the features of unions, such as their type or stability, may be less responsive to socioeconomic changes – relative to HICs (Pesando 2021b, 2021a). Recent research has also shown substantial variation, between and within LMICs, in partnership and gender regimes, as well as a large degree of heterogeneity in the duration of the process of union formation (Jackson 2012; Legrand and Barbieri 2002; Lesthaeghe 2020; Raymo et al. 2015). This implies that even when looking at the "same" process, whether it be union formation of transition to parenthood, it is essential to appreciate the fact that they may be operating and changing quite differently across and within countries in response to various forces of economic, social, and cultural development (Jackson 2015). In light of scholarship suggesting that marriage forms show resistance to change in contexts of entrenched poverty and rooted gender norms, in this study we are open to the possibility that patterns of partnership formation

and within-couple dynamics might be positively related to some children's outcomes, but not others – and exhibiting important heterogeneity both within and between LMICs. To that end, we explore regional variation in these associations, as well as whether they differ depending on the stage of fertility transition. We do so by adopting a *multi-axis conceptualization* of child health and well-being including outcomes for (i) health at birth; (ii) health in later life; and (iii) schooling, in line with the broad conceptualization of human capital as a combination of "*schola et sanitate*" (school and health) (Lutz 2009, 2017), and leveraging multiple Demographic and Health Survey (DHS) data from 75 LMICs conducted between 1990 and 2018, combined with ancillary sources from the World Bank Development Indicators.

2. Data and Methods

We use data from DHS for 75 countries conducted between 1990 and 2018 across six world regions, namely Americas, Asia, Former Soviet Union, Middle East and North Africa, West Africa, and the rest of Sub-Saharan Africa (SSA) (see Figure 1).

Figure 1: Countries and regions covered in the analysis, number of countries in parentheses.

World regions

Americas (11) Former USSR (9) West Africa (14)
Asia (12) MENA (5) Rest of SSA (24)
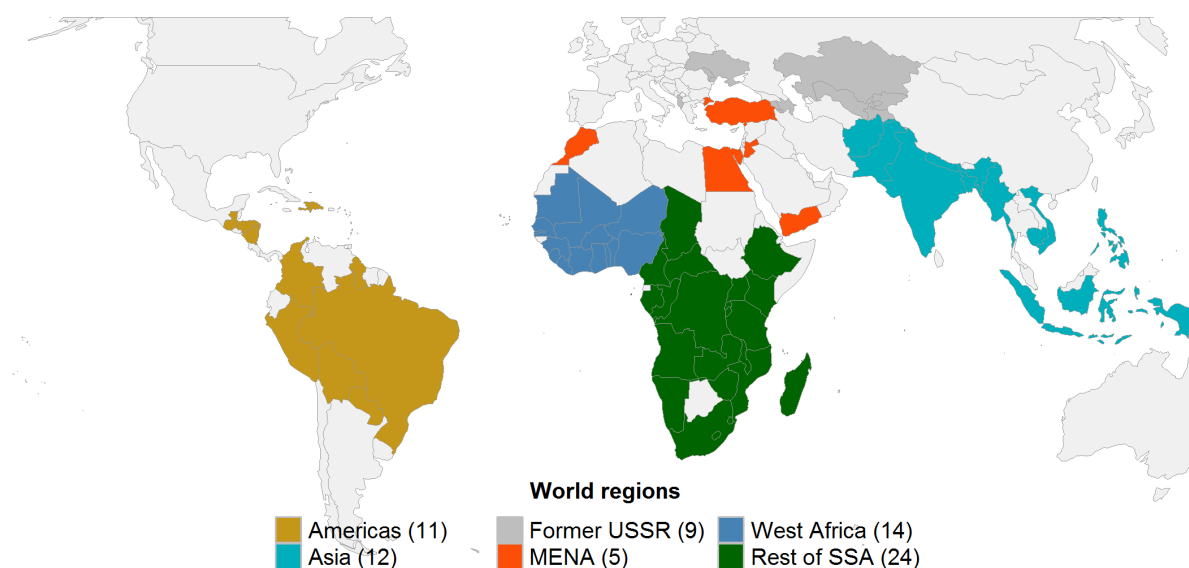
We distinguish between West Africa and the rest of SSA as the former region is characterized by distinct union formation practices that include higher levels of child and arranged marriage and higher levels of polygyny relative to the rest of the region. In total, we analyze 251 country-waves of microdata that include information about socioeconomic characteristics of women aged 15-49.

For each country-wave, we compute six macro-level indicators of partnership events and behaviors, and we divide them into two groups: **(i) indicators reflecting gender differences within partnerships** (*within-couple dynamics*): age differences between partners (male partner minus female partner), differences in years of schooling between partners (male partner minus female partner), and an indicator of women's decision-making power describing the degree to which partners make joint decisions in the household (proportion of women that have a say in decisions about large purchases) and **(ii) broad indicators describing patterns of partnerships** (*union formation*): singulate mean age at marriage (SMAM), prevalence of marriage,[1] and prevalence of divorce and separation. The latter two indicators are calculated for women who were 25 years old and above at the time of the survey, in order to ensure that timing of marriage (captured by SMAM) is not embedded in the latter measure as well.[2] We acknowledge that there are alternative and additional dimensions of the family besides within-couple dynamics and patterns of union formation (e.g., reproduction), yet in this study we focus on these two dimensions jointly, building on recent analyses that have identified these two family dimensions as being closely tied (i.e., loading on the same factorial axis, in more technical terms) and explaining the highest degree of variability in a group of 20 family indicators pertaining to the same 75 LMICs (Castro et al. 2021).

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[1] Our definition of marriage in this study excludes those women who report "living together" with a male husband/partner.

[2] We explored alternative age cut-offs for the calculation of the prevalence of marriage and the prevalence of divorce and separation (e.g., age above 30 instead of 25 years), and they produced similar results.

Variables included in the first group are relatively good measures of women's decision-making power within the household vis-à-vis their male partners.[3] Age and educational differences between partners also proxy for kinship structure. For instance, Casterline, Williams, and McDonald (1986) suggested that in patriarchal societies and in societies characterized by patrilineal kinship organizations, the spousal age difference tends to be relatively large. Conversely, in settings where traditional social structures allow for a more equal status of spouses, or where exposure to Western family forms and modernization processes have improved the status of women, the age difference tends to be smaller. All indicators except for SMAM are age-standardized to purge them from the confounding role of heterogeneous age distributions across countries.
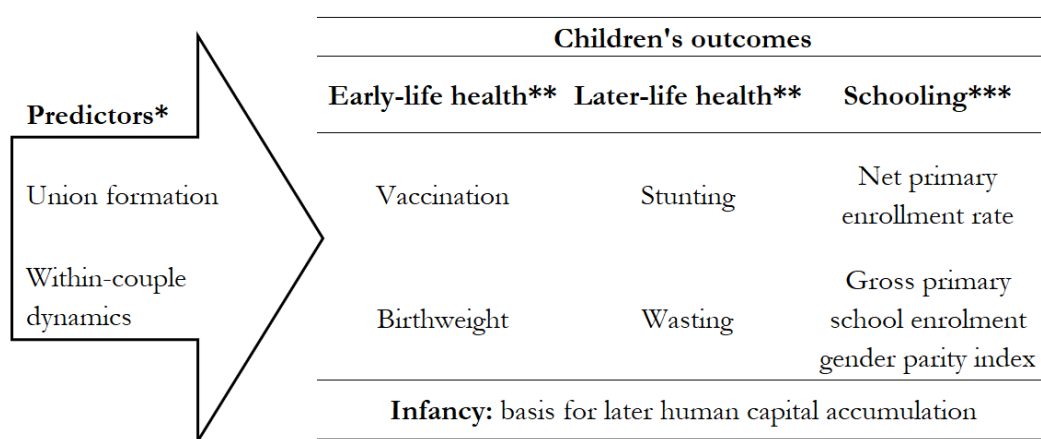
We relate these measures of partnership with six indicators of child health and well-being from the DHS StatCompiler (Measure DHS 2022) and the World Bank Database (World Bank 2022), and group them into three categories. For each country-wave, from StatCompiler we obtain information about (i) **children's early-life health:** proportion of children aged 0-5 that received all eight basic vaccinations and proportion of children aged 0-5 whose birth weight was less than 2.5kg (the threshold for the definition of low birth weight), and (ii) **children's later-life health**: proportion of children that are stunted and proportion of children that are wasted.[4] From the World Bank Development Indicators, we obtain information corresponding to a given country-wave about (iii) **children's schooling:** net primary school enrolment rate and gross primary school enrolment gender parity index (GPI). We use the World Bank indicators describing children's level of schooling because of large number of missing values

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[3] Note that the decision-making power variables in the DHS have been criticized as proper measures of empowerment for not taking into account how decision-making processes vary across time and space as women's personal goals evolve (Donald et al. 2020; Miedema et al. 2018). Nonetheless, they remain widely used in socio-demographic research, mostly due to the lack of better measures that apply to multiple country contexts.
[4] Note that in this study we define early-life as infancy and later-life as early childhood.

for the corresponding variables in DHS.[5] Figure 2 summarizes our multi-axis conceptualization of the period of infancy, as the basic developmental stage for future human capital accumulation, and the two aspects of partnership patterns and behaviors (predictors) that we focus on in the analysis.

Figure 2: Conceptualization of the period of infancy, as the basic developmental stage for future human capital accumulation, and the two aspects of partnership patterns and behaviors covered by the analysis.

Predictors*	Children's outcomes		
	Early-life health**	Later-life health**	Schooling***
Union formation	Vaccination	Stunting	Net primary enrollment rate
Within-couple dynamics	Birthweight	Wasting	Gross primary school enrolment gender parity index
	Infancy: basis for later human capital accumulation		

Note: Sources of data and indicators - * Authors' calculation based on individual DHS recodes, ** Measure DHS (2022), *** World Bank (2020).

Using linear regression models, we examine country-level associations between our predictors – variables describing partnership dynamics and behaviors – and our outcomes – variables pertaining to child health and well-being. First, we run a series of regressions, starting from basic models without any control variable, and subsequently add variables that could be associated both with our predictors and outcomes. Step-by-step, we control for countries' total fertility rate (TFR) and the level of urbanization, by calculating terciles of the values of these

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[5] We linearly interpolated the values for available years in order to obtain yearly estimates and match them with the corresponding DHS waves.

two variables based on the pooled sample of country-waves. Our thresholds for defining TFR and urbanization (U) categories are as follows: low (TFR: 1.2-3.5, U: 6-30%), medium (TFR: 3.6-5.1, U: 30-46%) and high (TFR: 5.2-7.7, U: 46-90%). We subsequently add controls for region that a given country is situated in. These models allow us to explore the extent to which the associations under study could be driven by other macro-level determinants or regional differences in the relationship between patterns of partnerships and child outcomes.

Second, we explore in greater depth heterogeneity in these associations. First, we study whether there is a regional variation in the relationship between union patterns and child well-being. We follow the approach of Pesando and GFC Team (2019) and run regressions that exclude one region at a time. This approach overcomes challenges associated with conducting stratified analyses by region, where the sample size would simply be too limited to conduct reliable region-specific analyses. These models include controls for the level of TFR and urbanization. Subsequently, we explore whether the associations between partnership patterns and children's outcomes change as countries transition from higher to lower fertility, thus whether they differ depending on the countries' stage of fertility transition. To that end, we disaggregate our analyses by the level of TFR and conduct separate regressions for country-waves belonging to each TFR tercile, as described above. These models include controls for regions and level of urbanization.

Although it would be important to also examine whether the association between union formation, within-couple dynamics and child well-being have changed over time in the last decades, due to the limited number of observations (251 country-years), the fact that not all countries have multiple DHS waves and that survey's time coverage differs between countries, we are unable to conduct such investigation. We nonetheless cast light on the temporal variation

in the studied associations by conducting separate analysis for surveys conducted before and

after 2004, to explore whether they differ between the earlier and later survey DHS waves.[6]

Table 1: Descriptive statistics for the predictors and outcomes, based on all countries covered in the analysis. Number of country-waves available to calculate each indicator, out of 251 available in total.

	Mean	**(SD)**	**Min**	**Max**	**Country-waves available**
Child outcome					
Early-life health					
Vaccination	0.58	(0.20)	0.11	0.95	245
Birth weight	0.89	(0.04)	0.68	0.97	215
Later-life health					
Stunting	0.66	(0.13)	0.40	0.93	215
Wasting	0.92	(0.05)	0.73	1.00	214
Schooling					
Prim. School Enrolment Rate	0.80	(0.18)	0.21	1.00	181
Prim. School Enrolment GPR	0.93	(0.11)	0.50	1.16	229
Predictor					
Age gap btw. partners	6.88	2.59	2.83	13.73	211
Years-of-school. gap btw. partners	0.99	1.10	-5.57	3.45	243
Decision-making power	0.57	0.21	0.14	0.95	161
SMAM	21.64	1.87	17.23	28.26	202
Prevalence of marriage	0.70	0.20	0.05	0.96	251
Prevalence of divorce/separation	0.07	0.05	0.00	0.25	251

Note: Outcome variables are reported such that a higher value corresponds to a more positive outcome (e.g., birth weight – proportion of children *not* born underweight, stunting – proportion of children *not* stunted, wasting – proportion of children *not* wasted).

In all the regressions, we weight the estimates by the inverse of the number of waves

available for each country to account for the fact that for some countries more surveys are

available than for others. We summarize the results in a series of plots that show coefficients

describing the standardized associations between our predictors and outcomes. All indicators

are standardized on the pooled sample of country-waves so that coefficients reflect changes in

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[6] We choose year 2004 as it is a mid-year of the period covered by the DHS waves that we draw upon (1990-2018). The models include controls for regions and level of urbanization and TFR and are briefly described in the results section and shown in the Appendix.

a given child outcome measured in standard deviations (SD) per one SD change in a given predictor. For easier interpretation of the results, we re-code each outcome variable such that a higher value means a more positive outcome. For example, a variable "stunting" (originally, proportion of children that are stunted) is recoded such that its higher value denotes a more positive outcome, i.e., lower level of stunting. Overall, positive coefficients mean that a given predictor is associated with better child outcomes, while negative ones correspond to worse outcomes. Table 1 shows descriptive statistics for each of the predictors and outcomes, across all countries covered by the analysis. It also shows the number of country-waves available to calculate each of the indicators, out of the 251 surveys available in total.

3. Results

Overall and regional analyses

Figures 3 and 4 present associations between the six predictors describing within-couple dynamics and union formation and the six outcomes measuring child health and well-being. The left panels of these figures present the standardized regression coefficients from six models that are distinguished by four types of markers: (i) a model without any controls (empty dot), (ii) a model with a control for the level of TFR and urbanization (cross), (iii) a model with a control for a region a country is situated in (triangle) and (iv) a model with all the three controls included (filled dot). The right panels of the figures present results of models that include controls for the level of TFR and urbanization (ii above) and exclude one region at a time. The black markers (left panels) and filled markers (right panels) denote coefficients that are statistically significant (p-value<0.05).

Figure 3: Standardized regression coefficients describing associations between indicators of *within-couple dynamics* and child outcomes; analysis for all regions (left panel) and excluding one region at a time while controlling for TFR and urbanization level (right panel).
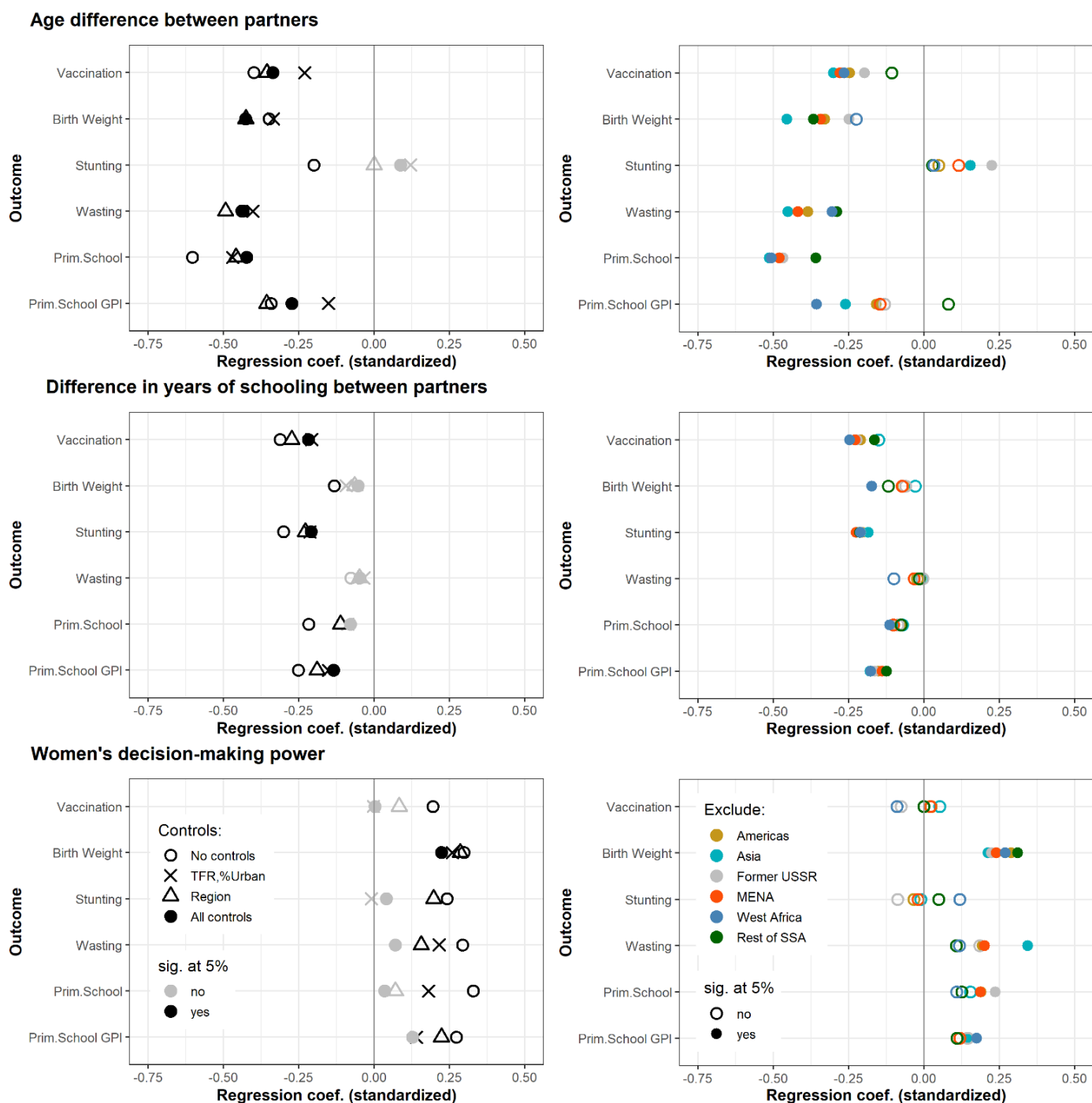
Note: Outcome variables are reported such that a higher value means a more positive outcome (e.g., birth weight – proportion of children *not* born underweight, stunting – proportion of children *not* stunted, wasting – proportion of children *not* wasted).

The results of models describing the associations between indicators of *within-couple dynamics* and child outcomes (Fig. 3, left panels) indicate that in contexts characterized by more equal status between spouses – i.e., a narrower age range between spouses and smaller differences in years of schooling between partners – and higher women's decision-making power, children fare better on several outcomes. For example, note the *negative* relationship between the age differences (with higher values denoting larger age differences, thus less equal status between partners) and vaccination (with higher values denoting higher proportion of children vaccinated). The associations are particularly strong for the indicator measuring age differences between spouses and, for five out of the six outcomes (except for stunting), they are also robust to the inclusion of additional controls (Fig.3, left, top panel). These strong and robust associations speak to the centrality of (relative) age as both a marker of women's position within couples and societies, and as a significant correlate of intergenerational reproduction of (dis)advantages.

While accounting for potential macro-level determinants and regional variation substantially weakens the association between women's decision-making power and positive children's health and well-being (except for birth weight) (Fig.3, left, bottom panels), the "protective" role of a more equal status between partners – proxied by smaller differences in years of schooling – continues to be observed for at least one outcome in each of the categories (vaccination, stunting and primary school GPI) (Fig.3, left, middle panels). While the non-significant associations for women's decision-making power may be partly due to lower sample sizes (only 161 country-waves had requisite information, see Table 1), it may also be the case that higher decision-making power of women could threaten status imbalances within the household, perhaps triggering more controlling or even violent behavior on the part of male partners, thus not translating into better outcomes for children. Some of this evidence would also be consistent with existing literature on women's autonomy in terms of higher relative education,

employment, and financial independence and unequal gender dynamics within households, as demonstrated by Weitzman (2014) in India, Behrman (2019) in Kenya, Uganda, and Zimbabwe, and Pesando (2021c) in Angola.

The analysis of regional heterogeneity provides evidence that these associations do not vary markedly; however, some notable differences can be observed. Fig.3 (right panels) present markers that correspond to the coefficients of regression analyses for a given outcome and a predictor obtained when one region is excluded (these models include a control for TFR level and % urban). There is a relatively high degree of homogeneity in the association between partner's differences in years of schooling and children's health and well-being (Fig.3, right, middle panel for that predictor shows that indicators cluster around each other). The "protective" role of smaller age differences between spouses is, on the other hand, largely driven by West Africa (for birth weight) and the rest of SSA (for vaccination and for primary school GPI). For example, if the SSA African countries (category: rest of SSA) were excluded from the sample, the negative association between age difference between partners and vaccination would become null (Fig.3, top, right panel). Conversely, countries outside of SSA are responsible for making the positive association between women's decision-making power and children's outcomes smaller than it would be if they were excluded (see wasting and primary school attendance in Fig.3, bottom, right panel).

The results of models describing the associations between indicators of *union formation* and child outcomes provide evidence of a strong association between SMAM and children's health and well-being (Fig.4, left, top panel). Although the relationship weakens when the variation between regions, the level of TFR, and urbanization are taken into account, children's early- and later-life health, as well as schooling outcomes are more favorable in settings where women marry at a later age – except for birth weight.

Figure 4: Standardized regression coefficients describing associations between indicators of *union formation* and child outcomes; analysis for all regions (left panel) and excluding one region at a time while controlling for TFR level and urbanization level (right panel).
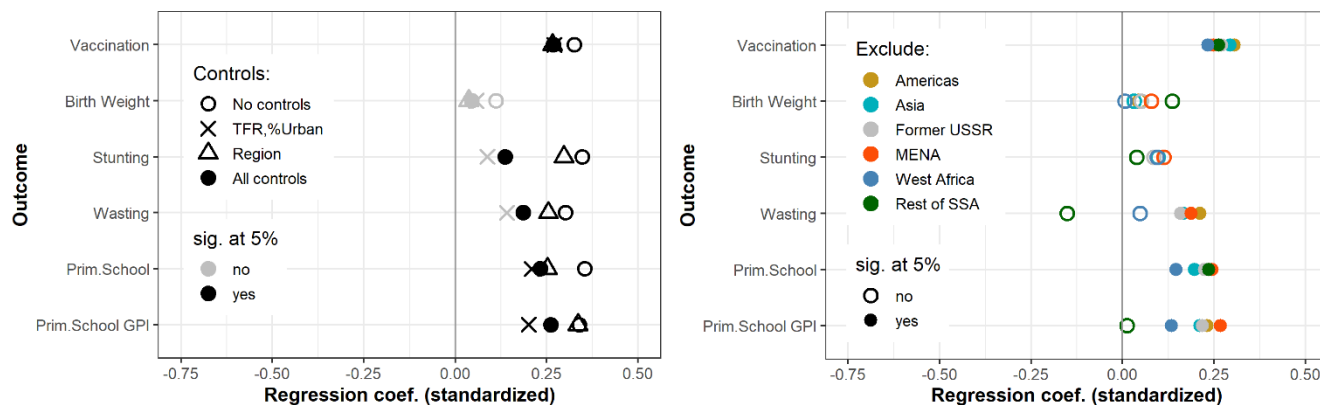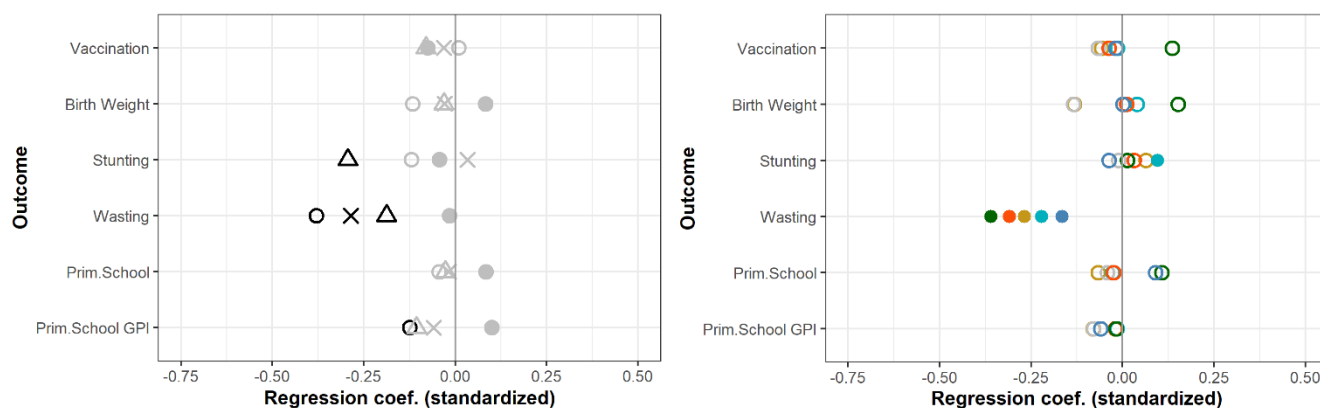
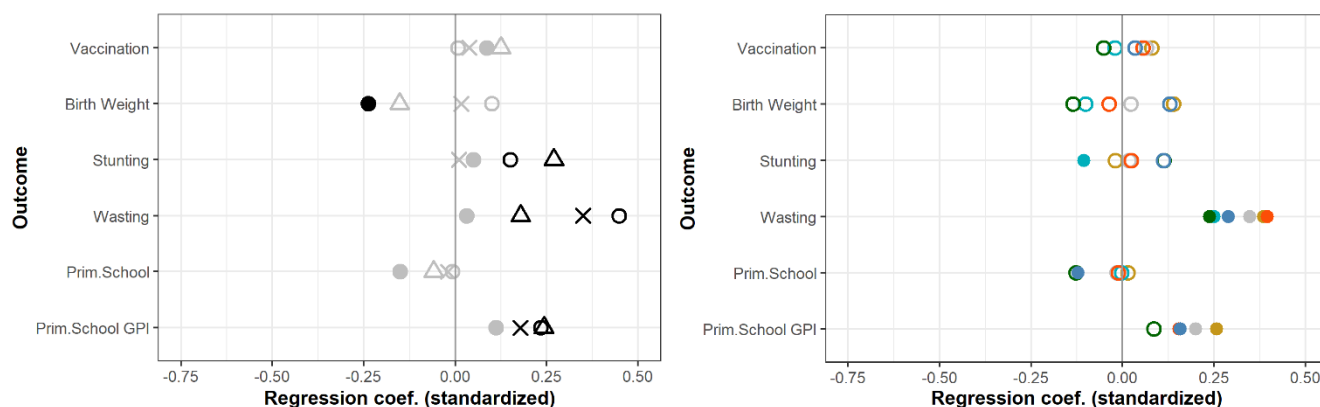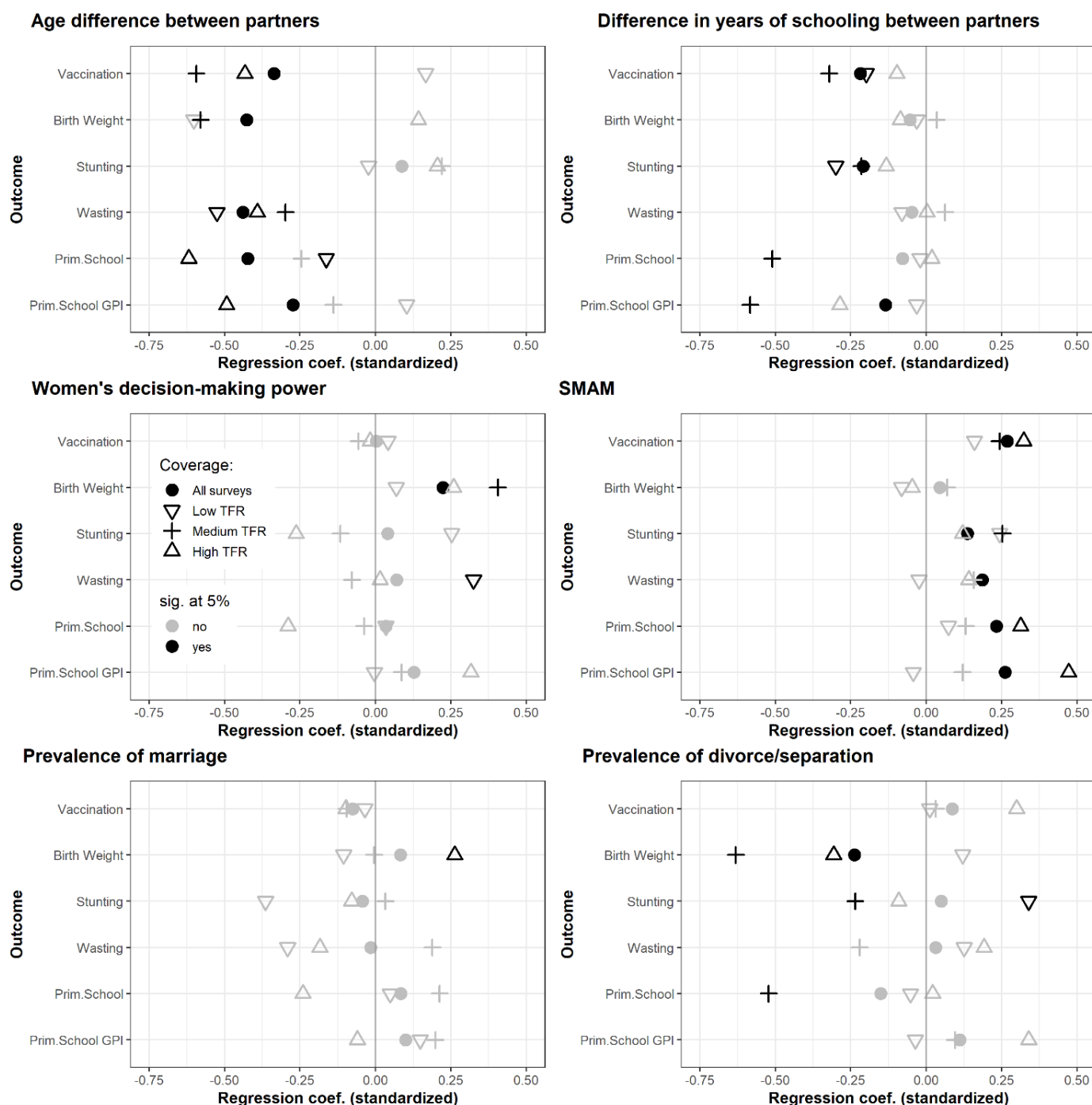*Note*: Outcome variables are reported such that a higher value means a more positive outcome (e.g., birth weight – proportion of children *not* born underweight, stunting – proportion of children *not* stunted, wasting – proportion of children *not* wasted).

SSA is largely driving this association, as across most outcomes associations would weaken or become null if SSA countries (both West Africa and the rest of SSA) were excluded from the analyses (see, for instance, wasting and primary school GPI in Fig.4, right, top panel). Overall, higher age at marriage among women (as shown in Fig.4 for SMAM) and smaller age differences between partners (as shown in Fig.3) are strongly associated with children's outcomes, and the existing associations appear to be mostly driven by SSA. This is in line with research showing that SSA is the region with the largest differences in age between spouses in the world, which go together with women's early, often child, marriage (Barbieri and Hertrich 2005; Batyra, Kohler, and Furstenberg 2021; Casterline, Williams, and McDonald 1986; Koski, Clark, and Nandi 2017). Our results indicate that such family contexts may be particularly "detrimental" when it comes to fostering children's health and well-being.

The findings for the two other indicators of union formation instead point towards the idea that at a macro-level, the prevalence of marriage and divorce/separation is not invariably associated with children's outcomes (Fig.4, left, middle and bottom panels). The regressions without or with only selected controls suggest that the prevalence of marriage is associated with worse later-life health and the prevalence of divorce with better later-life health. Nonetheless, these associations disappear once all additional controls are included. Thus, we do not find evidence that settings with higher prevalence of marriage provide a more stable environment for raising healthy and thriving children. Moreover, only for one outcome (birth weight) do we find evidence that children fare worse in settings with higher prevalence of divorce and separation. The analysis of variation in Fig.4 (right, middle, and bottom panels) suggests that these relationships are not consistently driven by any particular region.

Figure 5: Standardized regression coefficients describing associations between indicators of within-couple dynamics, union formation and child outcomes; analysis by level of TFR, models include controls for region and urbanization level.

Note: Outcome variables are reported such that a higher value means a more positive outcome (e.g., birth weight – proportion of children *not* born underweight, stunting – proportion of children *not* stunted, wasting – proportion of children *not* wasted).

Analysis by the stage of fertility transition and time-period

Figure 5 shows the analysis by countries' TFR levels and follows the same presentation logic as figures described above, yet each individual panel corresponds to one predictor. Although there is a high degree of heterogeneity in the reported associations, several patterns can be identified in the relationship between indicators of *within-couple dynamics* and children's outcomes. First, the associations between narrower differences in partners' age and children's better health and well-being are stronger in medium- and high-fertility settings (top panel, left). For example, while settings with greater age differences between partners show lower levels of primary school attendance among children overall (coef.~-0.4), the coefficients for high- and low-fertility settings are around -0.65 and -0.15, respectively (Fig.5, left, top panel).

Moreover, there is a particularly strong association between differences in years of schooling between partners and children's schooling in mid-fertility transition contexts (coef.>0.5) (Fig. 5, right, top panel). It is possible that in the context of declining fertility, which usually goes hand-in-hand with educational expansion, more equal educational status of partners might facilitate children's school attendance, and girls' in particular (as described by the higher GPI in these contexts). This is less the case for children's early-life and later-life health outcomes, where most estimated associations are null, particularly for birth weight and wasting, especially in high-fertility countries. This evidence is consistent with recent sociological analyses on the relationship between parental educational homogamy and children's health outcomes. For instance, Rauscher (2020) in the US and Abufhele, Castro, and Pesando (2021) in Chile found that parental educational similarity is beneficial for children's health at birth due to higher agreement on parenting practices, lower levels of maternal stress, and higher family stability due to more cooperation and less frictions. Conversely, focusing on lower-income and higher-fertility contexts (Ethiopia, India, Peru, and Vietnam) and on a series of health outcomes measuring child health longitudinally from ages 1 to 15, Pesando (2021a) found that in

countries characterized by higher socioeconomic development and lower gender inequalities, the associations are overwhelmingly positive, in a spirit similar to the US and Chile (Peru and Vietnam), while in the remaining countries the associations are either negative or null (Ethiopia and India). Although several explanations could lie behind the negative or null associations, a likely one is that in societies where unequal status between men and women is the norm, status homogamy would actually bring disruptions to daily life and be associated with higher levels of stress and tension (Cools and Kotsadam 2017), thus "neutralizing" and even reverting the potential beneficial effects of parental educational similarity. Relatedly, it might be the case that given the poor quality of education and the low returns to schooling in some sub-Saharan countries such as Ethiopia, improvements in mother's educational status might do little to change her bargaining power (Behrman 2020).

When it comes to indicators of *union formation*, two main patterns can be identified. First, in line with the results pertaining to the indicator of within-couple dynamics – age difference between partners - the "protective" role of higher age at marriage among women is also much stronger in mid- and higher-fertility settings (Fig. 5, right, middle panel). Overall, the strength and the robustness of the associations between children's outcomes and age-related measures (e.g., age difference between partners and SMAM) suggest that intergenerational transmission of (dis)advantage in mid- and higher-fertility contexts is related to the relative position of women vis-à-vis their partners, and vis-à-vis the society as they enter marriages and potentially become mothers.

When it comes to other indicators of *union formation*, for most outcomes, analyses by level of TFR largely confirm results of the regressions covering all TFR settings, with some exceptions. Namely, Figure 5 shows that prevalence of marriage is generally not associated with children's well-being (left, bottom panel). High-TFR settings are the exception, as here we do observe that higher proportions of marriages correlate with smaller proportions of

children that are born under-weight. Even more prominently, while the analysis covering all countries showed null association, the analysis by TFR level reveals that children in mid- and high-TFR settings that are characterized by higher prevalence of divorce/separation fare worse on one outcome in each of the categories (birth weight, stunting and primary school attendance), as compared to settings with lower prevalence of separation (Fig.5, right, bottom panel). This implies that, overall, the positive, macro-level link between marriage and children's outcomes is visible only in medium and high fertility settings. We do not find evidence that the associations between children's outcomes and the prevalence of marriage and divorce/separation documented in high TFR settings extend to low TFR contexts (Fig.5, bottom panels). In fact, the association between the prevalence of divorce/separation and stunting reverses in setting with relatively low fertility levels. These macro-level results could be seen as in line with a growing number of single-country studies from low fertility contexts, such as United States, China or Hong-Kong, highlighting that parental divorce might not always be associated with adverse child outcomes and that remaining in unhappy marriages and marital conflict might have equally detrimental consequences on children as divorce itself (Brand et al. 2019; Cheung and Park 2016; Zhang 2020).

Finally, in the Appendix we show that the results disaggregated by time-period (for survey waves conducted pre- and post-2004) are less clear-cut but still in line with findings by the stage of fertility transition. For example, narrower age differences between partners and higher SMAM are associated with better children's health and well-being for earlier (pre-2004) than later time-periods (post-2004) – consistently with the idea that fertility is higher in earlier period (Fig.A1, left, top panel). The opposite pattern is observed for differences in years of schooling between partners and our measure of empowerment, although differences are minimal and hardly statistically significant, especially in the latter case. The results depicting associations with the prevalence of marriage and the prevalence of divorce/separation are also in line with

results by the stage of fertility transition in that the prevalence of marriage is positively associated with children's outcomes and the prevalence of divorce/separation with worse outcomes only in earlier rather than later time periods (Fig.A1, bottom panels, marriage on the left for stunting and divorce/separation on the right for birth weight).

4. Discussion

This paper is the first to document intergenerational associations between union-formation and within-couple dynamics and children's health and well-being across low- and middle-income countries (LMICs), captured with multiple dimensions and indicators. Our analyses also document heterogeneity in these associations (or lack thereof) by major geographic region and the stage of fertility transition.

Our key findings are twofold: first, we document that, in general, the more equal status of partners within a couple is positively correlated with children's health and schooling, highlighting a particularly important role of within-couple dynamics in promoting children's well-being in LMICs. Our results, however, point to substantial variation in these associations. Namely, we uncovered that these relationships, as well as a positive relationship between women's age at marriage and better children's outcomes, are particularly strong in mid- and high-fertility settings. Conversely, our results point towards the possibility that, at a macro-level, the prevalence of marriage and divorce/separation is not invariably associated with children's outcomes. Here as well, the analysis by the level of TFR uncovered a large degree of heterogeneity. We found that marriage and divorce/separation correlated with several positive and negative outcomes, respectively; nonetheless, these associations are visible only in medium and high fertility settings. Overall, our findings provide a novel contribution to the relevant literature by suggesting a more prominent role of gender-balanced partnerships and marriage in promoting children's health and well-being at earlier, rather than later stages of the

fertility transition.[7] In so doing, our findings also provide macro-level evidence that corroborates some of the scholarship on parental separation and children's outcomes conducted in high-income societies, suggesting that couple stability is not a pre-requisite for children's wellbeing anymore, or at least not in all circumstances.

When it comes to regional variation, although some of the associations (in particular those pertaining to within-couple dynamics) are driven by sub-Saharan African countries, overall, there appears to be little cross-regional heterogeneity. Our results, on the other hand, highlighted the centrality of demographic factors such as age. Specifically, and despite cross-national heterogeneities in family-related institutions, we find evidence of macro-level regularities in the meaning that different cultures, religions, societies, and institutions across these contexts give to (relative) age as a marker of adulthood, motherhood, and relative position of partners within unions. Interestingly, this macro-level regularity is a strong predictor of children's health and well-being, thus showing how intergenerational relations are deeply rooted in social structures that can be captured with relatively simple demographic measures.

Overall, our results enrich the literature on the importance of broader context in shaping the relationship between family and children's well-being, which so far has been largely dominated by studies on single countries or one particular region as well as singe predictor or outcome, as outlined in the Introduction. By highlighting that partnership regimes might not be uniformly associated with children's outcomes our study indicates a need for additional research focusing on the heterogeneity in the relationships between family forms and structures and child well-being in LMICs.

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[7] In reaching this conclusion, we acknowledge that some of our results that differ by transition stage may be partly driven by the changing nature of selection of couples into specific marriage forms, whose role and meaning does indeed change overtime.

5. References

Abufhele, A., Castro, A.F., and Pesando, L.M. (2021). *Educational Similarity and Infant Health in Chile: Evidence from Administrative Records , 1990-2015*. University of Pennsylvania Population Center Working Paper (PSC/PARC), 2021-75.

Barbieri, M. and Hertrich, V. (2005). Age difference between spouses and contraceptive practice in Sub-Saharan Africa. *Population* 60(5–6):617–654.

Batyra, E., Kohler, H.-P., and Furstenberg, F. (2021). Changing Gender Gaps in the Timing of First Union Formation and Sexual Initiation in Sub-Saharan Africa. *Population and Development Review* 47(2):289–322.

Behrman, J.A. (2019). Contextual Declines in Educational Hypergamy and Intimate Partner Violence. *Social Forces* 97(3):1257–1282.

Behrman, J.A. (2020). Mother's Relative Educational Status and Early Childhood Height-for-Age z Scores: A Decomposition of Change Over Time. *Population Research and Policy Review* 39(1):147–173.

Bhuiya, A. and Chowdhury, M. (1997). The Effect of Divorce on Child Survival in a Rural Area of Bangladesh. *Population Studies* 51(1):57–61.

Bliznashka, L., Udo, I.E., Sudfeld, C.R., Fawzi, W.W., and Yousafzai, A.K. (2021). Associations between women's empowerment and child development, growth, and nurturing care practices in sub-Saharan Africa: A cross-sectional analysis of demographic and health survey data. *PLoS Medicine* 18(9):1–30.

Bongaarts, J. (2001). Household size and composition in the developing world in the 1990s. *Population Studies* 55(3):263–279.

Bongaarts, J., Mensch, B.S., and Blanc, A.K. (2017). Trends in the age at reproductive transitions in the developing world: The role of education. *Population Studies* 71(2):139–154.

Brand, J.E., Moore, R., Song, X., and Xie, Y. (2019). Parental divorce is not uniformly disruptive to children's educational attainment. *Proceedings of the National Academy of Sciences of the United States of America* 116(15):7266–7271.

Case, A. and Ardington, C. (2006). The impact of parental death on school outcomes: Longitudinal evidence from South Africa. *Demography* 43(3):401–420.

Casterline, J.B., Williams, L., and McDonald, P. (1986). The age difference between spouses: Variations among developing countries. *Population Studies* 40(3):353–374.

Castro-Martín, T. and Dominguez-Rodriguez, A. (2016). Consensual Unions in Central America: Historical Continuities and New Emerging Patterns. In: Albert, E. and Lesthaeghe, R. (eds.). *Cohabitation and Marriage in the Americas: Geo-Historical Legacies and New Trends*. Springer, Cham: 157–185.

Castro, A.F., Pesando, L., Kohler, H.-P., and Furstenberg, F. (2021). Family Change and Variation Through the Lens of Family Configurations in Low- and Middle-Income Countries. *Population, Space and Place* e2531.

Castro Torres, A.F., Batyra, E., and Myrskylä, M. (2022). Income Inequality and Increasing Dispersion of the Transition to First Birth in the Global South. *Population and Development Review*.

Chae, S. (2016). Parental Divorce and Children's Schooling in Rural Malawi. *Demography* 53(6):1743–1770.

Cherlin, A.J. (2012). Goode's 'World Revolution and Family Patterns': A Reconsideration at Fifty Years. *Population and Development Review* 38(4):577–607.

Cherlin, A.J. (2016). A Happy Ending to a Half-Century of Family Change? *Population and Development Review* 42(1):121–129.

Cheung, A.K.L. and Park, H. (2016). Single Parenthood, Parental Involvement and Students' Educational Outcomes in Hong Kong. *Marriage and Family Review* 52(1–2):15–40.

Clark, S. and Brauner-Otto, S. (2015). Divorce in sub-Saharan Africa: Are Unions Becoming Less Stable? *Population and Development Review* 41(4):583–605.

Clark, S. and Hamplová, D. (2013). Single Motherhood and Child Mortality in Sub-Saharan Africa: A Life Course Perspective. *Demography* 50(5):1521–1549.

Clark, S., Koski, A., and Smith-Greenaway, E. (2017). Recent Trends in Premarital Fertility across Sub-Saharan Africa. *Studies in Family Planning* 48(1):3–22.

Cools, S. and Kotsadam, A. (2017). Resources and Intimate Partner Violence in Sub-Saharan Africa. *World Development* 95:211–230.

Davis, J., Bilsborrow, R., and Gray, C. (2015). Delayed fertility transition among indigenous women in the Ecuadorian Amazon. *International Perspectives on Sexual and Reproductive Health* 41(1):1–10.

Donald, A., Koolwal, G., Annan, J., Falb, K., and Goldstein, M. (2020). Measuring Women's Agency. *Feminist Economics* 26(3):200–226.

Esteve, A. and Florez-Paredes, E. (2018). The Stability Paradox : Why Expansion of Women's Education Has Not Delayed Early Union Formation or Childbearing in Latin America. *Studies in Family Planning* 49(2):127–142.

Esteve, A., García-Román, J., and Lesthaeghe, R. (2012). The Family Context of Cohabitation and Single Motherhood in Latin America. *Population and Development Review* 38(4):707–727.

Esteve, A., Schwartz, C.R., van Bavel, J., Permanyer, I., Klesment, M., and García-Román, J. (2016). The End of Hypergamy: Global Trends and Implications. *Population and Development Review* 42(4):615–625.

Fomby, P. and Cherlin, A.J. (2007). Family Instability and Child Well-Being. *American sociological review* 72(2):181–204.

Garenne, M. (2004). Age at marriage and modernisation in sub-Saharan Africa. *Southern*

African Journal of Demography 9(2):59–79.

Härkönen, J., Bernardi, F., and Boertien, D. (2017). Family Dynamics and Child Outcomes: An Overview of Research and Open Questions. *European Journal of Population* 33(2):163–184.

Jackson, C. (2012). Introduction: Marriage, Gender Relations and Social Change. *The Journal of Development Studies.* 48(1):1–9.

Jackson, C. (2015). Modernity and Matrifocality: The Feminization of Kinship? *Development and Change* 46(1):1–24.

Koski, A., Clark, S., and Nandi, A. (2017). Has Child Marriage Declined in sub-Saharan Africa? An Analysis of Trends in 31 Countries. *Population and Development Review* 43(1):7–29.

Legrand, T.K. and Barbieri, M. (2002). The possible effects of child survival on women's ages at first union and childbrith in Sub-Saharan Africa. *European Journal of Population* 18(4):361–386.

Lerch, M. (2019). Fertility Decline in Urban and Rural Areas of Developing Countries. *Population and Development Review* 45(2):301–320.

Lesthaeghe, R. (2020). The second demographic transition, 1986–2020: sub-replacement fertility and rising cohabitation—a global update. *Genus* 76(1).

Liu, C., Esteve, A., and Treviño, R. (2017). Female-Headed Households and Living Conditions in Latin America. *World Development* 90(637768):311–328.

Lutz, W. (2009). Sola schola et sanitate: human capital as the root cause and priority for international development? *Philosophical transactions of the Royal Society of London. Series B, Biological sciences* 364(1532):3031–47.

Lutz, W. (2017). Global Sustainable Development priorities 500 y after Luther: Sola schola et sanitate. *Proceedings of the National Academy of Sciences of the United States of*

America 114(27):6904–6913.

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography* 41(4):607–627.

Measure DHS (2022). STATcompiler [electronic resource]. Calverton, Maryland: ICF.

Miedema, S.S., Haardörfer, R., Girard, A.W., and Yount, K.M. (2018). Women's empowerment in East Africa: Development of a cross-country comparable measure. *World Development* 110:453–464.

Pesando, L.M. (2021a). A Four-Country Study on the Relationship Between Parental Educational Homogamy and Children's Health from Infancy to Adolescence. *Population Research and Policy Review*.

Pesando, L.M. (2021b). Educational Assortative Mating in Sub-Saharan Africa: Compositional Changes and Implications for Household Wealth Inequality. *Demography* 58(2):571–602.

Pesando, L.M. (2021c). *Safer If Connected ? Mobile Technology and Intimate Partner Violence.* University of Pennsylvania Population Center Working Paper (PSC/PARC), 2021-74.

Pesando, L.M. and GFC Team (2019). Global Family Change: Persistent Diversity with Development. *Population and Development Review* 45(1):133–168.

Psaki, S.R., McCarthy, K.J., and Mensch, B.S. (2018). Measuring Gender Equality in Education: Lessons from Trends in 43 Countries. *Population and Development Review* 44(1):117–142.

Rauscher, E. (2020). Why Who Marries Whom Matters: Effects of Educational Assortative Mating on Infant Health in the United States 1969-1994. *Social Forces* 98(3):1143–1173.

Raymo, J.M., Park, H., Xie, Y., and Yeung, W.J.J. (2015). Marriage and Family in East Asia:

Continuity and Change. *Annual Review of Sociology* 41:471–492.

Ruggles, S. and Heggeness, M. (2008). Intergenerational coresidence in developing countries. *Population and Development Review* 34(2):253–281.

Smith-Greenaway, E. and Clark, S. (2017). Variation in the link between parental divorce and children's health disadvantage in low and high divorce settings. *SSM - Population Health* 3(April):473–486.

Stoebenau, K., Madhavan, S., Smith-Greenaway, E., and Jackson, H. (2021). Economic Inequality and Divergence in Family Formation in Sub-Saharan Africa. *Population and Development Review*.

Torche, F. and Abufhele, A. (2021). The normativity of marriage and the marriage premium for children's outcomes. *American Journal of Sociology* 126(4):931–968.
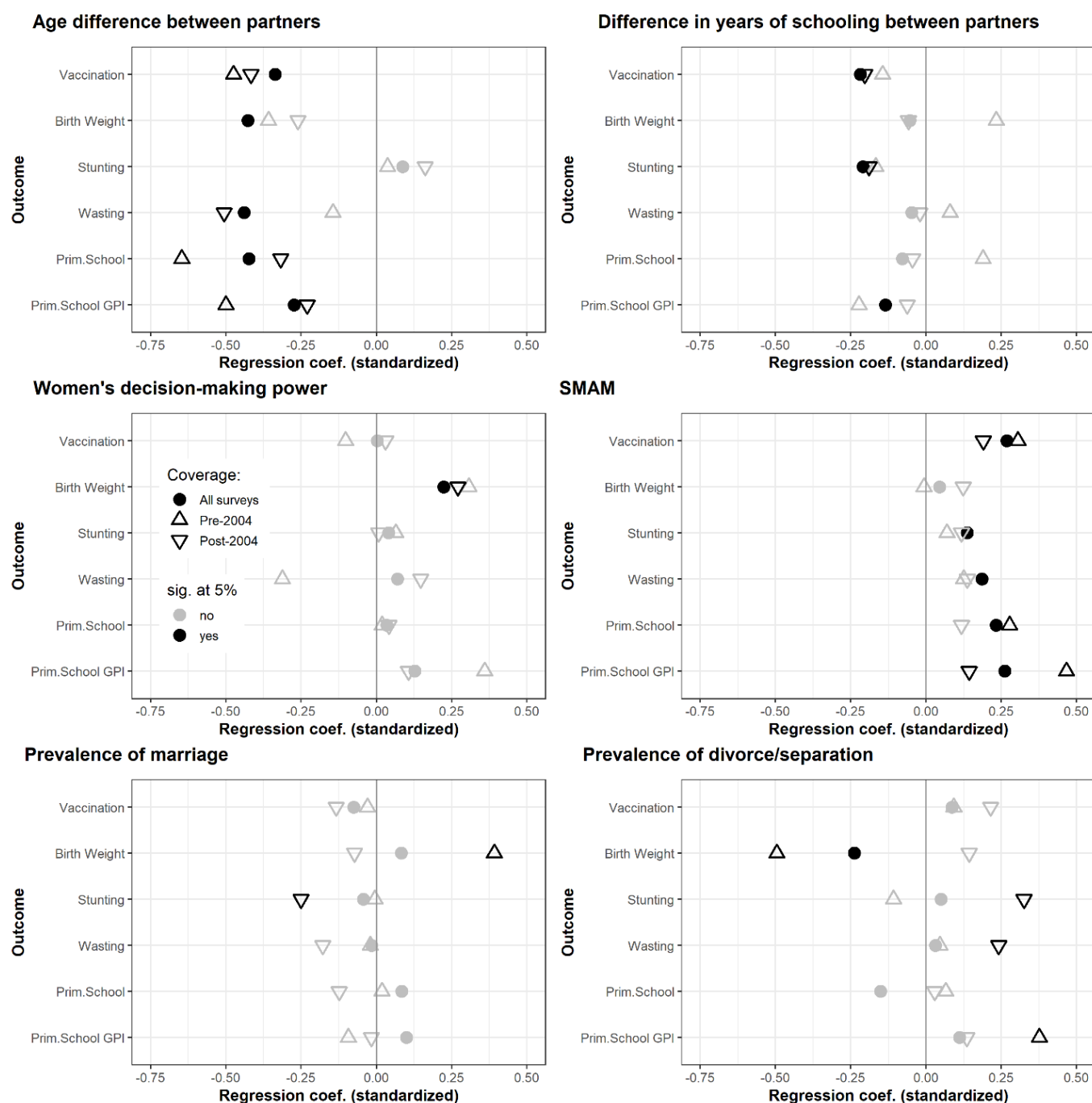
Weitzman, A. (2014). Women's and Men's Relative Status and Intimate Partner Violence in India. *Population and Development Review* 40(1):55–75.

World Bank (2022). *The World Bank Data*. Washington, DC: World Bank Group.

Zhang, C. (2020). Are Children from Divorced Single-Parent Families Disadvantaged? New Evidence from the China Family Panel Studies. *Chinese Sociological Review* 52(1):84–114.

Appendix

Figure A1: Standardized regression coefficients describing associations between indicators of within-couple dynamics, union formation and child outcomes; analysis by time-period (pre-2004 and post-2004), models include controls for region, urbanization level and level of TFR.

Note: Outcome variables are reported such that a higher value means a more positive outcome (e.g., birth weight – proportion of children *not* born underweight, stunting – proportion of children *not* stunted, wasting – proportion of children *not* wasted).